HAOHAI ELECTRONICS CO.,LTD.

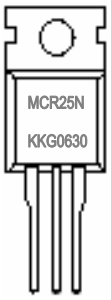
MCR25X SCRs

PRODUCT SPECIFCATION 英文與中文繁體版本

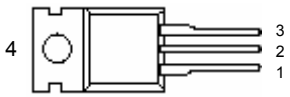
25A SCR Series : 25A 系列 塑封 高壓 單向可控硅【器件參數】

RoHS 無鉛產品提供SGS環保認證, 符合歐美RoHS環保指令標準

■QUICK REFERENCE【參考特性】

產品型號 Part Number	工業型號 Industry Part №	通態電流均方值 $I_{T(RMS)}$ (A)	斷態重復峰值電壓 V_{DRM} / V_{RRM} (V)	門極觸發電流 I_{GT}(μA/mA)	封裝外形 Package	包裝方式 Packing	元件標識 Marking
MCR25D	↓	25A	600 V	≤30mA	TO-220AB	50Pcs/Tube 1Kpcs/Box 6Kpcs/Box 每管50只 每盒1000只 每箱6000只 2.3g / Pcs 每枚重量2.3克 每K重3.0千克 (含包裝物)	 元件標識可按客戶指定要求
MCR25M			800 V				
MCR25N			1000 V				
MCR25H			1200 V				
MCR25G			1400 V				
可代替其他同類產品型號	BT152-500R、BT152-800R、MCR12M、MCR12N、MCR16M、MCR16N、TYN612、TYN812 TYN1012、TYN616、TYN816、TYN1016、TYN1216、TYN620、TYN820、TYN1020、TYN625 TYN825、TYN1025、TYN1225、S6025、S8025、SCP25C60、及其他25A電流高壓單向可控硅						
說明 Explain	①此規格為大電流、TO-220半塑封、特制高壓、單向可控硅 ②以常規電壓規格出貨, 高壓規格機種(特殊品種), 批量交期6~8周 ③門極觸發電流I_{GT}值可根據客戶要求細分至多個規格, 單位mA (毫安)						

■PINNING: TO-220AB (SOT-78) 【TO-220AB直插半塑封】 ◆TO-220AB非絕緣型: 中間管腳2 與 散熱片4 導通

Pin 管腳排列	Symbol 對應極性	Description 極性名詞	Description 極性含義	Practicality in Pin Arrange 元件實物與管腳排列對照	Pin Polarity Circuit diagram 腳位與極性之電路符號表示
1	K	Cathode	陰 極	 Non-Insulated	1=K 2=A 3=G 4=A=Tab 
2	A	Anode	陽 極		
3	G	Gate	門-控制極		
4	A	Tab	散熱片		

■ABSOLUTE RATINGs (Limiting Values)【額定值參數】

SYMBOL 符號表示	Paramenter & Test Conditions 符號含義 及 參數測試條件說明		Value 數值	Unit 單位
$I_{T(RMS)}$	通態電流均方值: On-State RMS Current (Tc=80℃)	180℃ Conduction Angles	25	A
I_{TSM}	通態浪湧電流: ½周期, 60Hz, 正弦波, 不重復 Peak Non-Repetitive Surge Current (½ Cycle, Sine Wave)	60Hz, Tj=-40°C→+110°C	300	
I_{GM}	正向門極最大電流: Forward Peak Gate Current	Pulse Width≤1μS,TC=80°C	2	
I^2t	週期電流平方時間積: Circuit Fusing Consideration	t=8.3mS	373	A^2ses
P_{GM}	門極平均峰值功率: Forward Peak Gate Power	Pulse Width≤1μS,TC=80°C	20	W
$P_{G(AV)}$	門極平均散耗功率: Forward Average Gate Power	t=8.3mS, TC=80°C	0.5	
V_{DRM} or V_{RRM}	斷態重復峰值電壓: Peak Repetitive Off-State Voltage (Tj=-40~125℃, Sine Wave, 50~60Hz; Gate Open)	見參考特性對應說明	600~1400	V
T j	工作結溫: Operating Junction Temperature Range @	Rate VRRM and VDRM	-40 ~ +125	℃
Tstg	貯存溫度: Storage Temperature Range		-40 ~ +150	
T_L	引腳承受焊錫極限溫度: Maximum Lead Temperature for Soldering Purposes 1/8,from Case for 10 Seconds		260	

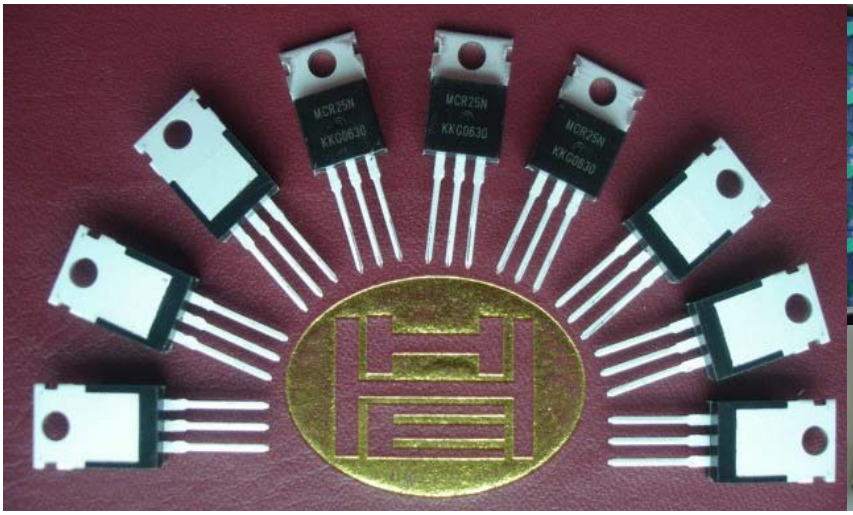
■ELECTRICAL CHARACTERISTICs (Tj=25℃ Unless Otherwise Noted)【電參數】

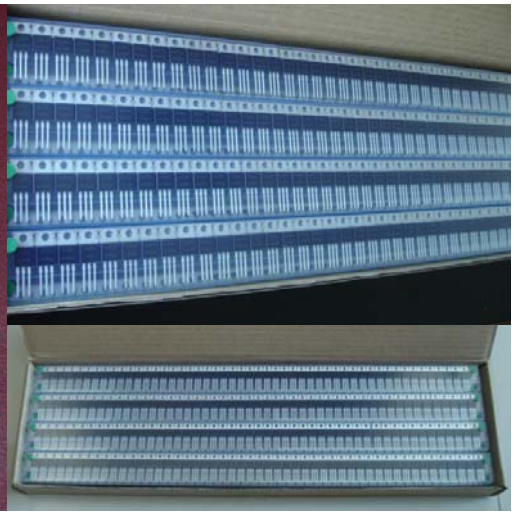
SYMBOL 符號表示	Paramenter & Test Conditions 參數符號含義 及 測試條件說明	Min 最小值	Typ 典型值	Max 最大值	Unit 單位
I_{GT}	門極 觸發電流: V_D=12V, R_L=100Ω (Tj=25°C)	4	12	30	mA
I_{DRM}	正向關斷峰值電流: Peak Forward Blocking Current (Tj=25°C)	→	→	0.01	
I_{RRM}	反向關斷峰值電流: Peak Reverse Blocking Current (Tj=110°C)	→	→	2	
I_H	維持電流: Holding Current (I_T=200mA, V_D=12V_{DC}) Tc=25°C	5	13	40	
I_L	最大接入電流: Latching Current (V_D=12V, I_G=200μA) Tc=25°C	→	35	80	
V_{GT}	門極 觸發電壓: Gate Trigger Voltage (V_D=12V, R_L=100Ω, Tj=25°C)	0.5	0.6	1	V
	門極 觸發電壓: Gate Trigger Voltage (V_D=12V, R_L=100Ω, Tj=-40°C)	→	→	1.5	
V_{GD}	門極不觸發電壓: Gate Non-Trigger Voltage (V_D=12V, R_L=100Ω, Tj=110°C)	0.2	←	←	
V_{TM}	峰值通態電壓: Peak Forward On-State Voltage (I_{TM}=16A Peak@Tj=25°C)	→	→	1.8	
dv / dt	斷態臨界電壓上升率: Critical Rate of Rise of Off-State Voltage (Tj=110°C)	100	250	→	V/μs
di / dt	通態臨界電流上升率: Critical Rate of Rise of On-State Current	→	→	50	A/μs
Rth(j-c)	熱阻-結到外殼: Thermal Resistance-Junction-to-Case	→	→	1.5	℃/W
Rth(j-a)	熱阻-結到環境: Thermal Resistance-Junction-to-Ambient	→	→	62.5	

支持綠色環保!
該產品已實行無鉛制程封裝，符合RoHS環保標準。

RoHS Pb SGS

MECHANICAL DATA TO-220AB 封裝尺寸 單位: 毫米 mm





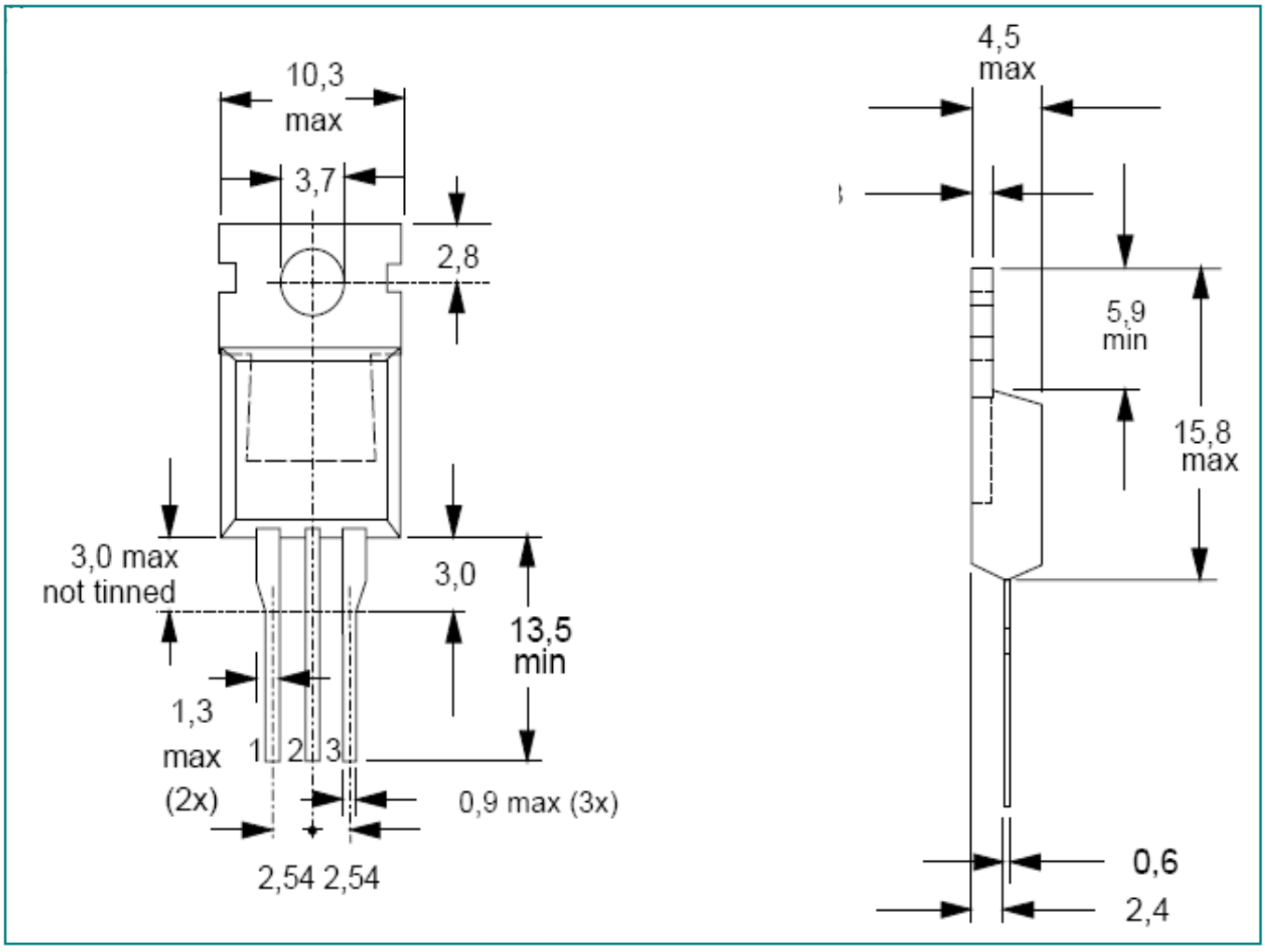


Figure 1	Voltage Current Characteristic of SCR

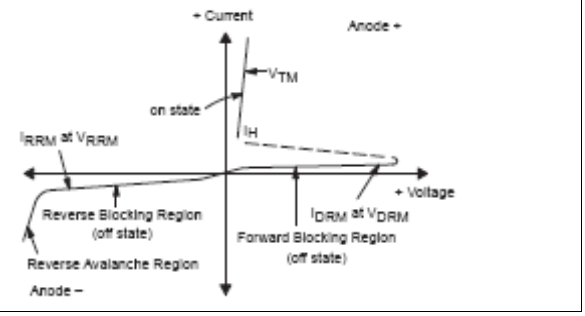
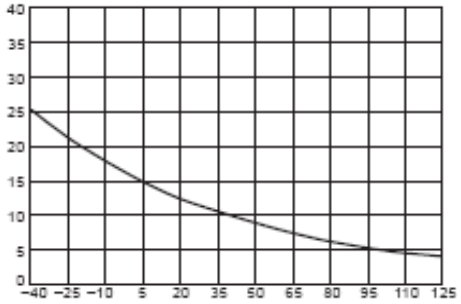
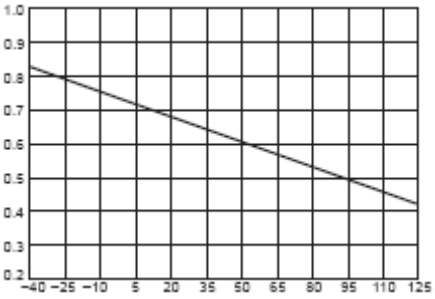


Figure 2	Typical Gate Trigger Current versus Junction Temperature



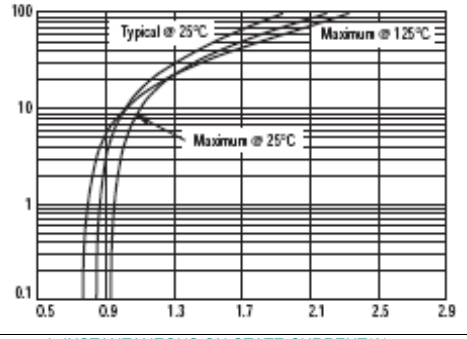
I_{GT}, GATE TRIGGER CURRENT(mA),TJ, JUNCTION TEMPERATURE (°C)

Figure 3	Typical Gate Trigger Voltage versus Junction Temperature



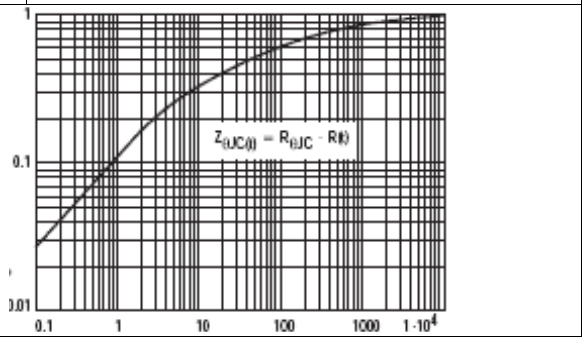
V_{GT},GATE TRIGGER VOLTAGE(V): TJ,JUNCTION TEMPERATURE (°C)

Figure 4	Typical On–State Characteristics



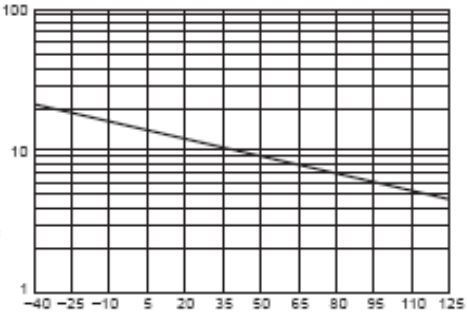
I_T,INSTANTANEOUS ON-STATE CURRENT(A):
V_T, INSTANTANEOUS ON-STATE VOLTAGE(VOLTS)

Figure 5	Transient Thermal Response



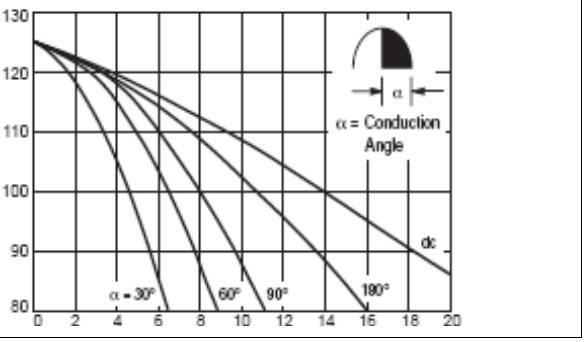
R(t)TRANSIENT THERMAL R(NORMALIZED): t,TIME(ms)

Figure 6	Typical Holding Current versus Junction Temperature



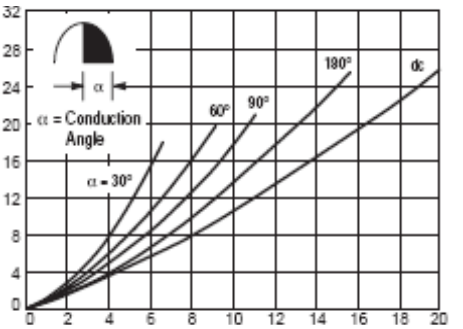
I_H,HOLDING CURRENT(mA): TJ, JUNCTION TEMPERATURE(°C)

Figure 7	Typical RMS Current Derating



Tc.CASE TEMPERATURE(°C): $I_{T(RMS)}$, RMS ON-STATE CURRENT(AMPS)

Figure 8	On State Power Dissipation



$P_{(AV)}$,AVERAGE POWER DISSIPATION(W):$I_{T(AV)}$,AVERAGE ON-STATE CURRENT(A)